



GARY R. HERBERT
Governor

SPENCER J. COX
Lieutenant Governor

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER
Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA
Division Director

September 23, 2015

Jim Sorensen
Brown Canyon Stone Works, LLC
7684 Whileaway Road
Park City, Utah 84098

Subject: Second Review of Notice of Intention to Commence Large Mining Operations, Brown's Canyon Stone Works, LLC, Brown's Canyon Rock Quarry Mine, M/043/0021, Summit County, Utah

Dear Mr. Sorensen:

The Division of Oil, Gas and Mining has completed a review of the referenced Notice of Intention to Commence Large Mining Operations (Notice) which was received August 21, 2015. The attached comments will need to be addressed before tentative approval may be granted.

The comments are listed under the applicable Minerals Rule heading; please format your response in a similar fashion. Please address items requested in the attached technical review.

Please submit your response to this review by November 2, 2015.

The Division will suspend further review of the Notice until receiving your response to this review. Please contact the appropriate reviewer with questions about the review: Leslie Heppler (lah) at 801-538-5257, April Abate (aa) at 801-538-5214, Mike Bradley (mpb) at 801-538-5332, Lynn Kunzler (lk) at 801-538-5310, Wayne Western (whw) at 801-538-5263, or me (pbb) at 801-538-5261. Thank you for your cooperation in completing this permitting action.

Sincerely,

Paul B. Baker
Minerals Program Manager

PBB: lah: eb

Attachment: Review

cc: Summit County – SLewis@summitcounty.org

P:\GROUPS\MINERALS\WP\M043-Summit\M0430021-BrownsCyn-StoneWorks\Final\REV2-6798-09012015.docx

**SECOND REVIEW OF NOTICE OF INTENTION
TO COMMENCE LARGE MINING OPERATIONS
Jim Sorensen-Brown Canyon Stone Works, LLC
Browns Canyon Stone Works Mine
M/043/0021
September 23, 2015**

General Comments:

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
1	General	<i>Previous Comment: The mining plan submitted does not show much area for expansion. The Division recommends including all areas where mining might expand in the next five years.</i>	lah	
		Please be aware that if the mine expands without a proper amendment, the Division will take enforcement action. (No response needed.)	lah	
2	General	<i>Previous Comment: The submittal should be formatted to easily incorporate additional revisions and amendments. All revisions should refer to comment number and also page where revisions were made.</i>	lah	
		(No specific response needed.)		
3	General	<i>Previous Comment: The Division may generate additional comments based on submittals received in the future. A cover-to-cover review will need to be done on the final plan before it is approved.</i>	lah	
		This comment does apply to some of the new maps, but no response to this specific comment is needed.	lah	

R647-4-105 - Maps, Drawings & Photographs

General Map Comments

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
4	All Maps	<i>Previous comment : Please only use bar scales on each map, as the documents the Division scans may be printed on different paper sizes.</i>	lah	
		To restate: please delete everything relating to scale except the bar scale.		
5	All Maps	<i>Previous comment: Many maps have "all streams" in the legend. The streams need to be further delineated by type of stream such as perennial, etc.</i>	lah	
		As noted below, on Exhibit I, the drainage is noted as a site ditch; on Exhibit H one of the drainages has been labeled as an intermittent stream. Please correct this apparent discrepancy.	lah	

105.1 - Topographic base map, boundaries, pre-act disturbance

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
6	Page 4 a.	New comment: also include a reference to Exhibit G as the owners are shown on G.	lah	
7	Page 4 b	There is a concrete pad that needs to be included as a structure. It will also be included in the reclamation cost estimate.	lah	
8	Exhibit A	Please label the 1952 Aerial Photo as Exhibit A and increase the size of the photo so it can viewed.	lah	
9	Omission	Please show the location of the topsoil stockpiles. The location will affect the bond costs.	lah	

105.2 - Surface facilities map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
10	Exhibit C	Please include the concrete pad on Exhibit C.	lah	
11	Page 5 b.	Please change "no proposed acreage" to "no proposed increase in acres."	lah	
12	Page 6	Text will need to be modified to match changes in the maps	lah	
13	Exhibit C and other maps, text, and reclamation cost estimate	Appropriate maps, text, and the reclamation cost estimate need to be updated to include the "Equipment Area (Non-Mine Parking)" within the site boundaries. This area is being used for the mining operations. The angle of repose outslope of the parking area to the northwest of the Equipment Area also needs to be included until the area has been properly graded and re-vegetated.	pbb	
14		Any areas of future expansion will need to have a cultural resource survey before being disturbed (comment only; no specific response needed).	pbb	
15	Page 5 – 1 st c.	<i>Previous comment: Please show the location of the mine pit on the map.</i> Thank you for including the pit on the plan view map. The pit also needs to be shown on the cross sections as noted below.	lah	
16	Page 6	Reclamation Treatment Map checklist: The reclamation treatments maps should be addressed under R647-4-105.3 (since it is discussed in rule R647-4-103.5.3.17). The text notes the reclamation treatment is shown on Figure E (though it also implies Figure D includes reclamation treatments since this map is referenced under the "Reclamation Treatments Map Checklist" heading) and the "entire area permitted" will be reclaimed (also noted on page 6 e.). The Division needs enough detail to make a proper reclamation cost estimate.	pbb	
17	Exhibit D	<i>Previous comment: This map does not match what is on the ground. There are several stockpiles and roads which are not accounted for in the legend.</i> See comment 13 above concerning the Equipment Area.	lah pbb	

105.3 - Drawings or Cross Sections (slopes, roads, pads, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
18	Exhibit E	<p><i>Previous comment: The reclamation map is incomplete. It does not show where soils will be redistributed and revegetation will be implemented. Include acreages of these reclamation activities on the reclamation map.</i></p> <p>Reclamation treatment areas have been delineated. However, the eastern-most area next to Brown's Canyon Rd. described as "reclaimed" is not shown on the map. Also, the slopes shown on E2 aren't correct. See other comments regarding this issue.</p>	mpb mpb	
19	Page 6	Text will need to be modified to match changes in the maps	lah	
20	Exhibit E	<p><i>Previous comment: The intent of a reclamation map is to show what will be done at the time of reclamation. All cross sections need both the existing surface and the reclaimed surface on each cross section. The volumes are needed to properly calculate the reclamation cost estimate. The Division recommends not including vertical exaggeration in the cross sections as it can be confusing to non-engineers.</i></p> <p>New Exhibits E1 and E2 are greatly improved but still don't reflect the steepness of the pit slope and the commitment in the text for 2H:1V slope angles in the text under section 110.2 on page 20. Stable highwalls that are in rock and less than 45 degrees don't need to be vegetated, but fill slope of 2H:1V do need to be vegetated. Exhibits E1 and E2 and the text do not comply with the rules. The plan is difficult to review until a clear plan is presented by the operator.</p>	lah lah	
21	Page 6	<p><i>Previous comment: There are numerous sources of older topographic and air photos showing the progression of mining in the area. Google Earth goes back to 1993 and shows a very limited mining footprint. Please revise the text to be accurate.</i></p> <p>In addition to the slope angles of the pit (already noted above), please include the slope angle of the fill adjacent to the roadway as a face angle of angle of repose (usually 37 degrees). The slope angle needs to be 2H:1V or 26 degrees for rock fill reclamation.</p>	lah lah	
22 New	Exhibit F	Addition of formation descriptions works well, but colored boxes in the legend conflict. Please remove the colored boxes as they are a duplicate of the inserts in the map area. Leave all other items in the legend.	lah	
23 New	Exhibit I	Please re-label the "site ditches appropriately;" they are not man-made ditches. Figure H labels the western drainage as an intermittent stream. All drawings need to be consistent.	lah	
24 New	Exhibit I	Berms and check dams were not shown on Exhibit I. Eighteen-inch culverts were labeled on the map, but their locations were not depicted on the map.	aa	

105.4 - Photographs

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
25	Exhibit A	<p><i>Previous Comment: Please limit to two photographs per page, as the resolution after scanning makes them difficult to view.</i></p> <p>New comment: please label the direction from which the photograph was taken.</p>	lah lah	

Second Review
Page 5 of 10
M/043/0021
September 22, 2015

R647-4-106 - Operation Plan

106.3 - Estimated acreages disturbed, reclaimed, annually/sequentially

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
26	Page 7	<i>Previous comment : The table on page 7 needs to match Exhibits C & D.</i>	lah	
	Page 8	Thank you for matching table with figure. When Exhibit C and D are correct, then the table will need to be updated to match.	lah	

106.4 - Nature of materials mined or processed (including waste materials), and estimated annual tonnages

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
27	Omission	<i>Previous comment: Please include tonnages.</i>	lah	
	Page 8	Thank you for adding acreage figure, but the overburden is not just 6"-35" (page 9). It would also include stockpiles of fine grained material that can't be sold. These materials could be used for achieving the slopes of 2H:1V discussed in the plan.	lah	
28	Page 9	It was previously stated that there will be no waste; please correct statement to be consistent with the rest of the plan	lah	

106.7 - Existing vegetation - species and amount

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
29	Page 12	Cover values reported in the replaced vegetation survey only utilized 4 percent for the shrub component of the stand and identified it as the 'ground cover portion' (see page 10 of the vegetation report). Since most of the shrubs (as per photos) are fairly low growing, the total aerial cover of the shrub component should have been used. This would result in an overall average of 51% ground cover which is more accurate reflection of the vegetation in the area. This figure should be reported on page 12 as part of the vegetation summary.	lk	

106.8 - Depth to groundwater, extent of overburden, geologic setting

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
30	Page 12	Section 106.8 includes a new statement, ". . . not having any excessive slopes during mining operations," but there is currently wedge failure potential in the pit. Please correct the statement to be accurate.	lah	
31	Page 10	<i>Previous comment : No silt fences were noted on site at the last inspection. The Division recommends the use of stone check dams as they have been very effective in the area.</i>	lah	
	Page 13	Thank you for the correction, but the Nugget Sandstone was incorrectly called a limestone. Please correct this statement. Page 12 & 13 & Exhibit I all need to be consistent.	lah	

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
32	Page 10	<i>Previous comment : Please show the locations on the map where storm water is retained.</i> Text notes several location for retaining storm water, but none of the locations are shown on Exhibit I.	lah	
33	Page 10 & Exhibit B	<i>Previous Comment : The pit bottom is shown at an elevation of 6,475 on x-section B-B'. Please provide more detail.</i> Exhibit E2 cross section does not show the actual existing grade at the site. Please modify both cross sections to show the actual existing grade and reclaimed grade	lah	
34	Page 10	<i>Previous Comment: The plan did not address in the narrative the extent of overburden or any description of the geology. Please provide a characterization of overburden extent and regional and site-specific geology.</i> New Comment: The extent of overburden characterization was not included in the latest response from the operator. Please update this information in the NOI.	aa	

106.10 - Amounts of material extracted or moved (including ore, waste, topsoil, etc.)

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
35	Omission	<i>Previous Comment: Please address section rule 106.10.</i> New comment - Section 106.10 now refers back to a chart that shows acres of disturbance which is "area," but section 106.10 wants to know about "amounts" which addresses the "volume" of material. The operator has stated verbally that he is continuing to mine at a very slow rate with no increase in the footprint or area. The NOI needs to reflect the operator's plan for the next five years. Please estimate the volumes or amount of material the operator intends to mine.	lah	

R647-4-109 - Impact Assessment

109.1 – Projected impacts to surface & groundwater systems

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
-----------	------------------------	----------	----------	---------------

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
36	Pg. 13	<i>Please indicate on a map where the protective measures mentioned in this section are located or will be located. As an alternative to producing a new map, please provide a copy of the existing industrial stormwater permit through the Division of Water Quality that describes, in detail, protections in place and proposed to protect surface water systems.</i>	mpb	
	Pg. 15 & Exhibit I	The only protective measures labeled on Exhibit I are 18-inch culverts. Please show check dam, berm, and other erosion control measure locations on the map. The 18-inch culverts should be shown as a dashed double line where they are installed and identified as such in the legend. Check dams, berms and other erosion control measures should also be included in the legend. The "Contour 10" symbol (gray long dash/double short dash line) is missing from the legend.	mpb	
37	Page 15	The text states "Any water that does make it to the mine pit has been found to quickly infiltrate with no ponding observed." The infiltration of water into the groundwater of the State of Utah might require a permit from the Division of Water Quality. Please contact DWQ, both Stormwater and Groundwater sections.	aa	
		The text on page 13 section "e" also states "infiltrate quickly".	lah	

109.3 – Projected impacts on existing soils resources

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
38 NEW	Page 17	Section 109.3b says "no historic drainage paths are being impacted by mining operation." This is not correct. There are three locations where 18-inch culverts have been indicated where mining operations have crossed (impacted) natural drainage paths. Please revise this comment to discuss these impacts.	mpb	

109.4 – Projected impacts on slope stability, erosion control, air quality, public health and safety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
39	Omission	<i>Previous comment : Please include a discussion in the text about the slope stability of the pit highwall.</i>	lah	
	Page 18	New comment : Thank you for including a statement about highwall stabilization and public safety. Please modify the statement the statement to read "... process according to industry standards."	lah	
40	Page 18	The NOI includes a new statement, "... not having any excessive slopes during mining operations," but there is currently wedge failure potential in the pit. Please correct the statement to be accurate.	lah	

R647-4-110 - Reclamation Plan

110.2 – Reclamation of roads, highwalls, slopes, impoundments, drainages, pits, piles, shafts, adits, etc

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
-----------	------------------------	----------	----------	---------------

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
41	Pg. 17	<p><i>Original Comment: The aerial photos in Exhibits C and D indicate that the ephemeral stream channel on the west side of the property has been impacted. Please describe how these impacts will be mitigated and how the drainage patterns will be re-established as required by this rule and R647-4-111.2.</i></p> <p>In this section, the operator is supposed to describe how impacts will be reclaimed. The recently added statement acknowledges that the ephemeral channel has been impacted and what may be done should the mine expand further. However, it does not discuss how these impacts will be mitigated and how natural drainage patterns will be reestablished after mining is completed, such as removing culverts and regrading to natural drainage contours. The existing statement should be moved into 109.3b, and replaced in this section with a discussion of how these impacts will be reclaimed after mining.</p>	mpb	
42	Page 17 b.	<p><i>Previous comment: More information is needed on the reclamation for the highwall, as it greatly affects bond costs.</i></p> <p>As noted elsewhere, the exhibits and the text need to be consistent.</p>	lah lah	
43	Page 17	<p><i>Previous Comment: The Notice says drainage/natural drainage patterns are "not part of this mine plan" and therefore are not addressed. Exhibit D shows that the drainage on the west side of the current mining operation has in fact been encroached on by mining activity. As such, a reclamation plan to restore that segment of the drainage is required.</i></p> <p>New Comment: No reclamation plan was provided for the channel. The response focused on a commitment that the mine will not expand beyond the boundaries of the channel. If culverts are to be removed at final reclamation, they need to be included in the demolition bond costs and discussed in this section of the text. Will culverts be removed at reclamation, or will they stay in place in perpetuity?</p>	aa aa	

110.4 - Description or treatment/location/disposition of deleterious or acid forming materials, including map

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
44	Pg. 18 Omission	<p><i>Original Comment: The response in Section 109.5a states that fuel will be stored in tanks with 110% secondary containment. Fuels, oils and other petroleum-based products used and stored on site are considered deleterious materials. Please identify all fuels, lubricants and oils used and/or stored on site and quantify them. A table may be the best option for this. Alternatively, an SPCC plan may be provided in an appendix.</i></p> <p>The first part of the added statement is contradictory to itself. It says "There is diesel stored in a 1,000-gal. fuel storage tank . . . However, the tank is empty currently and has not been used for the last several years" (emphasis added). Is there fuel in the tank? If it is not being used, it should be removed.</p>	mpb mpb	

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
45	omission	<i>Original comment: Other deleterious materials that should be identified and quantified to include for potential disposal costs as part of bond calculations are: Older building materials that may contain asbestos and/or lead-based paint; older transformers (owned by the company) that may contain PCBs; any other hazardous materials that require special abatement and handling procedures and/or disposal locations.</i> The Utah Department of Environmental Quality requires any building demolition to have an inspection and report documenting hazardous materials prior to demolition. This cost is not shown in the bond calculations.	mpb mpb	
46	Page 21	Section 110.3 says none of the facilities are expected to be left for post mining operations. How will the unpermitted parking area northwest of the Equipment Area be accessed following reclamation? Will it be necessary to leave access through the Equipment Area?	pbb	

110.5 - Revegetation planting program

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
47	Page 22	The revised seed mix is acceptable. However as an editorial comment, pure live seed is listed on the fifth line between Canby bluegrass and western yarrow. This is not a species but a description of seed purity and germination associated with the seeding rate. This line should be deleted.	lk	
	Page 21	Please show the location of the 17,182 cubic yards of topsoil. This will affect the bond costs	lah	

R647-4-113 – Surety

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
48	Page 26	The confidential box has now been checked “yes”, yet nothing is marked confidential. Please change it back as it was correct before.	lah	
49		As of the last inspection, there is currently enough equipment on site that there would be more than eight trips to remove equipment and debris from the site.	lah	
50		The NOI must list the source material for the costs in the worksheets in Appendix D.	whw	
51		The escalation factor for the bond summary sheet is 1.2% for 2015, not 0.5%.	whw	
52		Please include costs for demolishing and disposing of the concrete structure associated with the diesel fuel tank.	whw	
53		On the revegetation worksheet, the reseeding cost is shown as \$10,650.00 which is the same as the initial seeding cost. The second seeding cost could be shown as 25% of the initial seeding cost, or \$2,662.50.	whw	
54		The NOI needs to include costs for reclaiming highwalls. The cost can involve reducing rock slopes which cannot be estimated until the plan is consistent	whw	

Second Review
Page 10 of 10
M/043/0021
September 22, 2015

Comment #	Sheet/Page/Map/Table #	Comments	Initials	Review Action
55		The NOI needs to identify the location and volume of the soil stockpiles. The method for getting the soil material to the reclamation sites is with a dozer which may not be efficient for longer distances.	whw	
56		Please include reclamation costs for the Equipment Area and the angle of repose outslope of the parking area to the northwest.	whw & pbb	